NASA PROPAGATION STUDIES
STATUS

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CURRENT FOCUS: ACTS PROPAGATION CAMPAIGN

OBJECTIVE OF ACTS PROPAGATION CAMPAIGN:

- To leverage NASA's Advanced Communications Technology Satellite (ACTS) to characterize radiowave propagation at Ka-band for utilization by U.S. industry and the space community

EXPECTED RESULTS & OUTPUTS OF THE ACTS PROPAGATION CAMPAIGN:

- Ka-band propagation data
- Prediction models of rain and atmospheric attenuation and scintillation
- Fade and nonfade distributions
- Frequency scaling models
- Diversity models
- Mitigation schemes for signal impairments due to propagation
- Wet antenna effect model
- Rain climate region map revision
- Revised propagation handbooks for design of satellite communications systems
- Contributions to regulatory organizations

ACTS PROPAGATION CAMPAIGN MILESTONES

MILESTONE	CALENDER YEAR
• First planning workshop held in Santa Monica, Ca	1987
• Announcement of Opportunity released	1989
• Virginia Polytechnic Institute commissioned to develop the ACTS Propagation Terminal	1989
• Terminals delivered and ACTS launched	1993
• Two years (14 station-years) of ACTS propagation data distributed on CD-ROM	1996
• Work started to use ACTS propagation data to revise propagation models and handbooks	1996
• Three years (20 station-years) of ACTS propagation data distributed on CD-ROM	1997
Revised propagation models and handbooks to be distributed	1998
• Four years (27 station-years) of ACTS propagation data to be distributed on CD-ROM	1998
• Contributions to regulatory organizations to be made	1998-1999
• Five years (34 station-years) of ACTS propagation data to be distributed on CD-ROM	1999
• ACTS transitions into inclined orbit	1999

NEW FOCUS FOR NASA PROPAGATION STUDIES

- Source of Funding for NASA Propagation Studies: NASA's Cross Cutting Technology UPN 632-50
  - Entire 632 program managed through a GSFC Formulator (Gary Martin) and a JPL Implemetor (Steve Prusha), with high level HQ oversight by Code SM
  - NASA Enterprises are the main customers for NASA's Cross Cutting Technology UPN
  - 632 program segregated into major "Thrust Areas"
  - Communications is part of "High Rate Knowledge Delivery" Thrust Area with manager at LeRC (TBD)
  - JPL Propagation Studies is part of Communications
- JPL Propagation Studies will focus on priorities of "High Rate Knowledge Delivery" as they are defined.